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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Eiji Ohara

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EXAMINER

DIVINE, LUCAS

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/758,346

Applicant(s)

OHARA, EIJI

Examiner

Lucas J Divine

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 202, 207, 215, 216, 229, 230, and 231.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 223.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because it does not enable the United States Patent and Trademark Office to **determine quickly from a cursory inspection the nature and gist of the technical disclosure**. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase **'generate compression data every color component'** on page 51, line 11 is indefinite due to lack of information relating the terms 'generate compression data' and 'every color element'. Relating these phrases is required for particularly pointing out what is claimed in claim 11. Appropriate action is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Accad (US 5982937) in view of Smith et al. (US 5999710) hereafter referred to as Accad and Smith.

Regarding claim 1, Accad teaches a **print control apparatus** (Fig. 2, ref. no. 50) **which can communicate with a host computer and an image output apparatus** (both shown in Fig. 1), **comprising:**

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data generating means for generating second data (Fig. 1 ref. no. 30, col. 1 lines 20-22 and col. 5 lines 24-29, wherein printable second 'bitmap' data is generated from inputted first 'PDL' data) **which can be outputted from said image output apparatus** (Fig. 1 ref. nos. 54, 70, and 80, col. 5 lines 30 and 31, wherein jobs are output to the print engine to be printed) **from first data which is inputted from said host computer** (Fig. 1, ref. no. 10, col. 5 lines 20-21, wherein the host inputs print documents to the system);

first data compressing means for generating third data by performing a data compression based on a first compression format to said second data (Fig. 3 ref. no. 150, col. 8 lines 12-24, wherein second data is run through a first data compressing);

second data compressing means for generating fourth data by performing a data compression based on a second compression format different from said first compression format to said second data (Fig. 3 ref. no. 160, col. 8 lines 27-37, wherein second data is run through a second compressing different from the first compressing);

first data decompressing means for generating fifth data by performing a data decompression corresponding to said first compression format to said third data (Fig. 3 ref. no. 310, col. 10 lines 11-18, wherein the first decompression corresponds to the first compression format);

second data decompressing means for generating sixth data by performing a data decompression corresponding to said second compression format to said fourth data (Fig. 3 ref. no. 320, col. 10 lines 19-25, wherein the second decompression corresponds to the second compression format);

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and second output means for outputting said fifth or sixth data to said image output apparatus (Fig. 1 ref. nos. 54, 70, and 80, col. 5 lines 30 and 31, wherein jobs are output to the print engine to be printed).

Accad also teaches that the compressed images can be stored in RAM apart from the compression unit that compressed data is outputted to and inputted from (Fig. 3 ref. nos. 200 and 66, col. 5 lines 52-64, wherein the RAM can store the compressed page buffer).

Accad fails to teach **obtaining means for obtaining system information from said host computer, first output means for analyzing said system information which is obtained by said obtaining means and outputting said third or fourth data to said host computer, or the third or fourth data being inputted from said host computer.**

Smith teaches placing the memory for compressed data in the host (Fig. 5 ref. no. 6, col. 26 lines 41-52 and col. 15 line 12, wherein the compressed data is stored in the 'system' or 'host' memory). Smith also teaches **obtaining means for obtaining system information from said host computer and analyzing said system information which is obtained by said obtaining means** (col. 15 lines 35-38 and col. 16 lines 54-55, wherein the print control circuit has access to and obtains the information of available system memory and is able to analyze said available memory to decide where to place compressed print data). Smith further teaches **first output means for outputting said third or fourth data to said host computer and the third or fourth data being inputted from said host computer** (Figs. 1 and 5 ref. no. 6, col. 23 lines 22-25 and col. 24 lines 37-50, wherein the data is outputted to and inputted from compressed data memory shown to be located at the host computer above).

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Accad and Smith are combinable because they both take inputted print data, compress it in two different ways, make memory decisions based on the data, and then output the data to a print engine. Accad's storage RAM 66, which can hold their compressed page buffer 200 (col. 5 lines 62-64), acts the same as Smith's compressed raster print data memory 6 by holding the compressed image data before decompression.

It would have been obvious to one of ordinary skill in the art to place the storage RAM of Accad on the host as Smith teaches. The motivation for doing so would have been to make the processing of data through the compression system more efficient by reducing the complexity of memory interfacing, make the system memory size be more flexible and adjustable for other printing tasks, and allow the compression section to be more flexible to configuration alterations of varying print job types.

Regarding claim 2, which depends from claim 1, Accad teaches that **first data is code data according to a page description language** (Fig. 1 ref. no. 20, col. 5 lines 23-25).

Regarding claim 3, which depends from claim 1, Accad teaches that **second data is bit map data according to a dot format** (Fig. 1 ref. no. 40, col. 5 lines 26-29).

Regarding claim 4, which depends from claim 1, Accad teaches that **said first compression format which is used in said first data compressing means is a reversible compression format, and the decompression which is executed by said first data decompressing means is a decompression to data of a format opposite to said reversible compression format** (col. 2 lines 63-64 and col. 8 lines 12-24 and col. 10 lines 11-18, wherein the first compression and decompression is performed by a

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lossless, by definition reversible - provided in Microsoft Computer Dictionary reference - , method between the bit map and run length code formats).

Regarding claim 5, which depends from claim 1, Accad teaches that **said first compression format which is used in said first data compressing means is a run length compression format, and the decompression which is executed by said first data decompressing means is a decompression to data of a format opposite to said run length compression format** (col. 2 lines 63-64 and col. 8 lines 12-24 and col. 10 lines 11-18, wherein the first compression and decompression is performed by a run length compression format, method between the bit map and run length code formats).

Regarding claim 6, which depends from claim 1, Accad teaches that **said second compression format which is used in said second data compressing means is an irreversible compression format, and the decompression which is executed by said second data decompressing means is a decompression to data of a format opposite to said irreversible compression format** (col. 3 lines 1-4 and col. 8 lines 27-37 and col. 19-25, wherein the second compression and decompression is performed by a lossy, by definition irreversible, method between the bit map and JPEG formats).

Regarding claim 7, which depends from claim 1, Accad teaches that **said second compression format which is used in said second data compressing means is a JPEG compression format, and the decompression which is executed by said second data decompressing means is a decompression to data of a format opposite to said JPEG compression format** (col. 3 lines 1-4 and col. 8 lines 27-37 and col. 19-25, wherein the second compression and decompression is performed by JPEG encoding, method between the bit map and JPEG formats).

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Regarding claim 8, which depends from claim 1, Smith teaches that **said system information which is obtained by said obtaining means is a capacity of a memory which said host computer has** (col. 15 lines 35-38 and col. 16 lines 54-55, wherein the compressing system has the ability to check the capacity memory space).

Regarding claim 9, which depends from claim 1, Smith teaches that **said system information which is obtained by said obtaining means is a free capacity in a memory which said host computer has** (col. 15 lines 35-38 and col. 16 lines 54-55, wherein the compressing system has the ability to check the available memory space).

Regarding claim 10, which depends from claim 1, Smith teaches that **said third or fourth data which is outputted by said first output means is stored in a host memory or a hard disk which is built in said host computer** (Fig. 5 ref. no. 6, col. 26 lines 41-52 and col. 15 line 12, wherein the compressed data is stored in the 'system' or 'host' memory).

Regarding claim 11, which depends from claim 1, Smith teaches that **when said first data is color image data, said first and second data compressing means generate compression data every color component** (Fig. 1 ref. no. 12 and Fig. 5 ref. no. 125, col. 18 lines 55-67 and col. 19 lines 7-9 and discussed throughout, wherein the system generates compression data for each color component).

Regarding claim 12, which depends from claim 1, Smith teaches that **said print control apparatus and said host computer are connected by a predetermined bus interface** (Fig. 5 ref. no. 121, col. 23 lines 12-30, wherein the host and print control apparatus are connected by the PCI bus but could be another bus as stated in line 17).

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Regarding claims 13 – 22, the method steps of claims 13 – 22 are implicit in the operation of the apparatus discussed in the rejection of claims 1 – 10. By example, the obtaining and analyzing steps are shown by the obtaining and analyzing means of Smith wherein the print control circuit obtains and analyzes system information of available system memory. The data generating step is shown by data generator 30 of Accad's apparatus. The compressing and decompressing steps are shown by compressors 150 and 160 and decompressors 310 and 320 of Accad's apparatus. The inputting and outputting steps to and from host memory are shown by the lines representing inputting from and outputting to compression memory 6 in Fig. 1. Therefore, the claimed limitations of method claims 13 – 22 are met for the reasons discussed in the rejection of apparatus claims 1 – 10.

Regarding claims 23 – 32, the limitations of **a computer-readable memory medium which records a program for allowing a print control apparatus to execute said program** are shown in the invention of Accad and Smith. The computer-readable memory medium is disclosed as the ROM 64 of Accad and can be run by the Microprocessor 62. The steps of the algorithm are shown by the computer controlled operation of the apparatus of Accad and Smith as discussed in the method steps above regarding claims 13 – 22.

6. Claims 33 – 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Accad and Smith as applied to claims 1 – 32 above, and further in view of Sawano (US 5903715).

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Regarding claim 33, Accad teaches **a print control apparatus which can communicate with a host computer and a printing apparatus (Fig. 1) comprising: data generating means for generating bit map data (Fig. 1 ref. no. 30, col. 1 lines 20-22 and col. 5 lines 24-29, wherein printable second 'bitmap' data is generated from inputted first 'PDL' data) which can be outputted from said printing apparatus (Fig. 1 ref. nos. 54, 70, and 80) from print data which is inputted from said host computer (Fig. 1, ref. no. 10, col. 5 lines 20-21, wherein the host inputs print documents to the system);**

and second output means for outputting the bit map data generated by said data decompressing means to said printing apparatus (Fig. 1 ref. nos. 54, 70, and 80, col. 5 lines 30 and 31).

Smith teaches **first output means for outputting the compression data generated by said data compressing means to said host computer and data being inputted from said host computer (Figs. 1 and 5 ref. no. 6, col. 23 lines 22-25 and col. 24 lines 37-50, wherein the data is outputted to and inputted from compressed data memory shown to be located at the host computer above).**

Accad and Smith do not teach **data compressing means for selecting one of a plurality of compression formats for said bit map data and generating compression data by performing a data compression based on said selected compression format; data compressing means for selecting one of a plurality of compression formats for said bit map data and generating compression data by performing a data compression based on said selected compression format; data decompressing means for generating bit map data by performing a data decompression to said**

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compression data; and control means for selecting the compression format in said data compressing means on the basis of information obtained from said host computer.

Sawano teaches **data compressing means for selecting one of a plurality of compression formats for said bit map data and generating compression data by performing a data compression based on said selected compression format** (Fig. 2 ref. nos. 13 and 14, col. 2 lines 45-53 and col. 3 lines 15-20, wherein a plurality of compression formats perform compression upon data occurs and the best compressed data is then selected by comparator 14);

data decompressing means for generating bit map data by performing a data decompression to said compression data (Fig. 2 ref. no. 19, col. 3 lines 40-43, wherein the restoring sections restore the compressed data to bit map format);

and control means for selecting the compression format in said data compressing means on the basis of information obtained from said host computer (Fig. 2 ref nos. 14 and 17, col. 3 lines 23-30, wherein the analyzer 14 selects the smallest amount of compressed data based on the free memory of RAM 17).

Sawano is combinable with Accad and Smith because they all take inputted print data, compress it in different ways, make memory decisions based on the data, and then output the data to a print engine. Sawano's storage RAM 17 acts the same as Smith's compressed raster print data memory 6 and Accad's RAM 66 by holding the compressed image data before decompression.

It would have been obvious to a person of ordinary skill in the art to add the plurality of compression formats and selection thereof of Sawano to the combined

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invention of Accad and Smith. The motivation for doing so would have been to provide more choices of compression formats to more effectively utilize the available memory and provide more user control on how compression is completed on each print job.

Regarding claim 34, which depends from claim 33, Sawano teaches that **said control means selects the compression format in said data compressing means on the basis of a memory capacity of said host computer obtained from said host computer** (Fig. 2 ref nos. 14 and 17, col. 3 lines 23-30, wherein the analyzer 14 selects the smallest amount of compressed data based on the free memory of RAM 17, which would be placed in the host as taught by Smith).

Regarding claim 35, the limitations of claim 35 are the same as the limitations of independent claim 33 except the limitations listed below. The limitations that are the same as claim 33 are taught by Accad, Smith, or Sawano and are rejected for the reasons discussed with respect to the rejection of claim 33.

Accad further teaches **connecting means for connecting a printing apparatus** (Fig. 1 ref. no. 54, col. 5 lines 30-31, wherein the line representing an output to the print engine inherently refers to a connecting means for connecting to the printing apparatus).

Regarding claim 36, which depends on claim 35, Smith teaches that **said print data is data received by said host computer from another apparatus through a network** (Figs. 1 and 5 ref. no. 6, col. 23 lines 22-25 and col. 24 lines 37-50, wherein when the print control apparatus outputs to the host, the host computer receives the print data).

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Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please give special consideration to the review of these patent documents.

US-5,850,504 Cooper et al. 12-15-1998: teaches a method and apparatus for saving printer memory including: analyzing printer memory for compression decisions, compressing print data in reversible and irreversible formats, and creating printable bitmap data for printing.

US-5,479,587 Campbell et al. 12-26-1995: teaches a page printer having adaptive data compression for memory minimization including: a plurality of selectable compression procedures, a common bus, determining which compression procedure to use based on amount of available random access memory, and the ability to send print jobs to be printed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucas J Divine whose telephone number is 703-306-3440. The examiner can normally be reached on Monday through Friday, 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ljd

Lucas J Divine
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